

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	

CLAIMS

1. A method for distributing electronic mail efficiently across a network of information

5 processing units and intermediate nodes, the method on an information processing unit comprising the steps of:

receiving a mail message created by a user with a list of destinations; and

10 sending a single copy of the mail message across the network via intermediate nodes to addresses corresponding to the list of destinations using a reliable multicast technique.

2. The method as defined in claim 1, wherein the reliable multicast technique comprises a reliable small group multicast technique.

EXPRESS MAIL LABEL NO. EL563155020US

3. An information processing unit for distributing electronic mail efficiently across a network of information processing units and intermediate nodes, the information processing unit comprising:

a reception unit for receiving a mail message with addresses corresponding to a
5 list of destinations; and

a transmission unit for sending a single copy of the mail message across the network via intermediate nodes to addresses corresponding to the list of destinations using a reliable multicast technique.

10 4. The information processing unit as defined in claim 3, wherein the reliable multicast technique comprises a reliable small group multicast technique.

15 5. The information processing unit as defined in claim 3, wherein the transmission unit operates according to a communication protocol to process ACKs and NAKs as well as packet retransmissions.

EXPRESS MAIL LABEL NO. EL563155020US

6. A computer readable medium including instructions for distributing electronic mail efficiently across a network of information processing units and intermediate nodes, the computer readable medium comprising instructions for:

receiving a mail message with addresses corresponding to a list of destinations;

5 and

sending the mail message across the network via intermediate nodes to the addresses corresponding to the list of destinations using a reliable multicast technique.

7. The computer readable medium as defined in claim 6, wherein the reliable
10 multicast technique comprises a reliable small group multicast technique.

11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

EXPRESS MAIL LABEL NO. EL563155020US

8. A method for distributing electronic mail across a network of information processing units and intermediate nodes, the method on an intermediate node comprising the steps of:

receiving a multicast packet;

5 determining one or more "next hops" for forwarding the packet;

replicating the packet for each "next hop"; and

forwarding one copy of the packet to each of the "next hops".

9. The method as defined in claim 8, wherein the determining, replicating and
10 forwarding steps operate according to a Small Group Multicast scheme.

10. The method as defined in claim 8, further comprising the step of:

repetitively executing the determining, replicating and forwarding steps for each
newly received packet.

11. The method as defined in claim 8, further comprising the steps of:

processing ACKs and/or NAKs; and

performing packet retransmissions.

12. The method as defined in claim 8, wherein the multicast packet comprises a
20 small group multicast packet.

EXPRESS MAIL LABEL NO. EL563155020US

13. A computer readable medium including instructions for distributing electronic mail efficiently across a network of information processing units and intermediate nodes, the computer readable medium comprising instructions for:

receiving a packet containing address information for a list of destinations;
determining the "next hop" for each of those destinations; and
replicating the packet for each "next hop".

14. The computer readable medium as defined in claim 13, further comprising the instruction for:

forwarding a copy of the packet to each "next hop".

15. The computer readable medium as defined in claim 14, further comprising the instruction for:

repetitively executing the determining, duplicating and forwarding steps for each newly received packet.

16. The computer readable medium as defined in claim 15, further comprising the instructions for:

processing ACKs and/or NAKs; and
handling packet retransmissions.

EXPRESS MAIL LABEL NO. EL563155020US

17. An intermediate node for distributing electronic mail efficiently across a network of information processing units and intermediate nodes, the intermediate node comprising:

a reception unit for receiving a packet containing address information for a list of

5 destinations;

a determination unit for determining the "next hop" for each of the destinations;

and

a copying unit for replicating the packet for each of the "next hops".

10 18. The intermediate node as defined in claim 17, further comprising:

a forwarding unit for forwarding a copy of the packet to each of the "next hops".

15 19. The intermediate node as defined in claim 18, further comprising:

a repeater unit for repetitively executing the determining, duplicating and forwarding steps for each newly received packet.

20 20. The intermediate node as defined in claim 19, further comprising:

an acknowledge unit for processing ACKs and/or NAKs; and

a retransmit unit for handling packet retransmissions.